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1761



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

ATTY.'S DOCKET: FERRARINI =2

re Application of:	)	Art Unit: 1761
	)	
Roberto FERRARINI	)	Examiner: C. Sherrer
	)	
Appln. No.: 09/834,622	)	Washington, D.C.
	)	
Filed: April 16, 2001	)	October 21, 2003
	)	
For: A METHOD FOR TARTARIC	)	Confirmation No.: 3909
STABILIZATION; IN	)	
PARTICULAR...	)	

INFORMATION DISCLOSURE STATEMENT [IDS]

Customer Window, Mail Stop DD  
Honorable Commissioner for Patents  
U.S. Patent and Trademark Office  
2011 South Clark Place  
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Arlington, Virginia 22202

Sir :

This Information Disclosure Statement is submitted in accordance with 37 CFR §§1.97, 1.98, and it is requested that the information set forth in this statement and in the listed documents be considered during the pendency of the above-identified application, and any other application relying on the filing date of the above-identified application or cross-referencing it as a related application.

1. This IDS should be considered, in accordance with 37 CFR §1.97, as it is filed before the mailing date of a first office action on the merits.

2. In accordance with 37 CFR §1.98, this IDS includes a list (e.g., form PTO/SB/08A) of all patents, publications, or other information submitted for consideration by the office, either incorporated into this IDS or as an attachment hereto. A copy of each document listed is attached.

[X] Document AH is deemed substantially cumulative to Document AE, and, in accordance with §1.98(c), only a copy of each of the latter documents is enclosed.

3. Documents AE-AI are not in the English language. In accordance with §1.98(a)(3), Applicant states:

[X] An English translation of Document AE (or of the pertinent portions thereof), or a copy of each corresponding English-language patent or application, or English-language abstract (or claim) is enclosed.

[X] A concise explanation of the relevance of Documents AF-AI is found in the attached European search report (of the priority application, EP 1 146 115 A1) (see reply to Comment 68 in the preamble to the final rules; 1135 OG 13 at 20).

[X] A concise explanation of the relevance of Document AH can be found on page 2 of the specification, and Document AE is a corresponding patent with an English-language Abstract.

4. No explanation of relevance is necessary for documents in the English language (see reply to Comments 67 and 68 in the preamble to the final rules; 1135 OG 13 at 20).

5. Other information being provided for the examiner's consideration follows:

Document AD (SMITH WO '151)

Document AD is deemed substantially cumulative to Document AA.

Document AD/AA relates to a method for treatment of a solution to remove at least one predetermined component, including three steps.

The first step is processing the solution by reverse osmosis for producing a retentate and a raw permeate, with the raw permeate containing the predetermined component.

The second step is treating the raw permeate by passing it through an anion exchange column for removing at least a portion of the predetermined component and for producing a purified permeate.

The third step is combining the retentate with the purified permeate for producing a treated solution.

The present invention is somewhat similar, but relates to a wine treating method which provides for wine tartaric stabilisation and comprises a step of producing a retentate and a permeate by subjecting wine to a nanofiltration process, but not to reverse osmosis as per Smith (AD/AA).

Document AD/AA relates only to a generic treating method directed to the removal of unwanted compounds from wine. This generic method does not specifically provide for wine tartaric stabilization, and wine stabilization is not directly and unambiguously derivable from Document AD/AA.

In addition, document AD/AA teaches use of a MILLIPORE NANOMAX 95 membrane (column 3, line 49) which is characterized by high retention of uncharged organic

solutes larger than 250 Daltons of molecular weight, according to the catalogue available in Millipore's website. (Millipore Nanomax 95 membrane has a retention value larger than 250 Daltons.)

In addition, in the "Background to the Invention" (paragraph [00031]), Document AB affirms that the reverse osmosis membranes requires high pressures to remove undesirable compounds from alcoholic solutions, because they have a high retention capability. Thus, in AD/AA, the undesirable compounds have to cross the membrane and go to raw permeate and are eliminated in a purification process to which raw permeate has passed. Then purified permeate is combined with the retentate to give a purer wine.

Furthermore, the required high pressures result in an increase in temperature both in retentate and in permeate and this causes deterioration in processed alcoholic solutions, such as wine. In order to lower wine temperature, heat exchangers are utilized, but they are costly and cumbersome.

Another disadvantage in AD/AA is that reverse osmosis membranes are less effective than nanofiltration in removing volatile acidity due to their higher retention capability, and therefore a reverse osmosis process requires several recycles for purifying the solutions.

#### Document AC (TUDHOPE)

Document AC is deemed substantially cumulative to document AB. **Tudhope is not prior art to the present invention, but a discussion of Tudhope is believed desirable in the context of the present invention.**

Document AC/AB teaches a method for treatment of a solution similar to document AD/AB, except for the fact

that AC/AB uses a nanofiltration process instead of reverse osmosis. However, like AD/AA, Document AC/AB relates only to a generic treating method directed to the removal of unwanted compounds from wine, and not to a wine tartaric stabilization method.

It must be questioned whether Tudhope is patentable over Smith. In fact, it is usually accepted that the nanofiltration range extends from 200 to over 1000 Daltons. These values for nanofiltration range are confirmed, for example, by the Filtration Spectrum comprised in document AJ (Perry's *Chemical Engineers' Handbook* 7<sup>th</sup> Edition, McGraw-Hill, Section 22 on page 22-37, and published in 1996 by Osmonics Inc.).

A filtration with this membrane of Millipore inside the nanofiltration range overlaps with and therefore is not new in view of this particular example offered in Smith (AD/AA). Consequently, Tudhope (AB) may not be patentable over Smith because it is different from Smith (AD/AA) only for use of nanofiltration instead of reverse osmosis, with no difference in results in Tudhope. In the wine-making field, use of nanofiltration membranes instead of reverse osmosis ones has been well known for a long time in order to achieve exactly the effects which are claimed by Tudhope in Document AB.

It is true that filtration membranes in general have a higher degree of porosity than do reverse osmosis membranes, whereby in general a greater number of particles cross such filtration membranes with lower operating pressures, and with a lower retention upstream of the membrane. Therefore, the raw permeate produced by a nanofiltration process (compared with the raw permeate produced by a reverse osmosis process) will contain additional compounds, both desirable and

undesirable ones, which would have remained in the retentate if a reverse osmosis process had been used. Several of these new compounds which passed through the nanofilter give wine pleasing flavors and aromas; these might be eliminated in the purification of the raw permeate according to Tudhope.

Document AI

In enology, the use of nanofiltration membranes in replacement of reverse osmosis ones is cited, for example, by document AI (Amati, Ferrarini et Barbieri in their scientific report with the title "*Autoarricchimento dei mosti con membrane permeo-selettive*" (Transl.: Self-enriching of musts with permo-selective membranes) presented at " *2nd Congresso Itallano di Scienza degli Alimenti*" (Transl.: 2<sup>nd</sup> Italian Conference of Alimentary Science), Cernobbio (CO), on September 21-22, 1995).

Applicant quotes here a paragraph of this report (on page 1, paragraph 6) in which replacement of reverse osmosis membranes with nanofiltration ones is clear:

To overcome these typical drawbacks of reverse osmosis concentration technique the sperimentation way of using nanofiltration permo-selective membranes has been taken with explicit aim of verifying the possibility, which has been formerly proposed by other authors, of increasing the sugary content of musts without a comparable increase of organic acids and particularly of malic acid." (translated from Italian to English).

An advantage of filtration, characterized by high degree of porosity, is therefore to reduce operating pressures and consequently wine temperature.

The possibility to substitute a filtration membrane to increase or reduce pressure is well known

and a comparison between nanofiltration membranes and reverse osmosis ones is made, for example, in document AI at page 2, paragraph 1, where it is affirmed:

The Molecular Weight Cut Off (MWCO) of Nanofiltration membranes is situated between 100-500 Daltons, the operating pressures of nanofiltration are usually lower than 40 bar, while those typical of Reverse Osmosis are 50-100 bar." (translated from Italian to English).

Smith (AD/AA) considered with AI (Amati) thus casts doubt on the patentability of Tudhope (AB).

6. In accordance with 37 CFR §§1.97(g) and (h), the filing of this IDS should not be construed as a representation that a search has been made or that information cited is, or is considered to be, material to patentability as defined in §1.56 (b), or that any cited document listed or attached is (or constitutes) prior art. Unless otherwise indicated, the date of publication indicated for an item is taken from the face of the item and Applicant(s) reserves the right to prove that the date of publication is in fact different.

Respectfully submitted,  
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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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of 2

**Complete if Known**

Application Number	09/834,622
Filing Date	April 16, 2001
First Named Inventor	Roberto Ferrarini
Group Art Unit	1761
Examiner Name	C. Sherrer
Attorney Docket Number	FERRARINI =2



## U.S. PATENT DOCUMENTS

[illegible]

**FOREIGN PATENT DOCUMENTS**

[illegible]

Examiner  
Signature

Date  
Considered

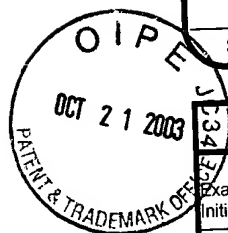
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		First Named Inventor	Roberto Ferrarini
		Group Art Unit	1761
		Examiner Name	C. Sherrer
		Attorney Docket Number	FERRARINI =2
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Examiner Signature		Date Considered	
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<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.